AGENCY USE ONLY				
PERMIT NO.:	Date Rec'd.:	Amount Rec'd..	Check No.:	Rec'd By:
MTG010278	5/29/15	$600	13035	

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Montana Department of
ENVIRONMENTAL QUALITY

WATER PROTECTION BUREAU

FORM
NOI

Notice of Intent (NOI) for Montana Pollution Discharge Elimination System Application for New and Existing Concentrated Animal Feeding Operations

The Application form is to be completed by the owner or operator of a Concentrated Animal Feeding Operation (CAFO) or Aquatic Animal Production Facility. Please read the attached instructions before completing this form. You must print or type legibly; forms that are not legible or are not complete will be returned. You must maintain a copy of the completed application form for your records.

Section A - Application Status *(Check one)*:

- [x] New — No prior application submitted for this site.
- [ ] Resubmitted — Permit Number: MTG _____
- [ ] Renewal — Permit Number: MTG _____
- [ ] Modification — Permit Number: MTG _____

Section B - Facility or Site Information (*See instruction sheet.*):

Site Name: Horizon Colony

Site Location: (34N-5W-S11) 100 Horizon Road Cut Bank, MT 59427

Nearest City or Town: Cut Bank County: Glacier

Latitude: 48.716667 Longitude: -112.224167

Date Facility began operation? 2012

Is this facility or site located on Indian Lands? [ ] Yes [x] No

Section C - Applicant (Owner/Operator) Information:

Owner or Operator Name: Mike Wurz

Mailing Address: PO Box 819

City, State, and Zip Code: Cut Bank, MT 59427

Phone Number: 1-406-336-2961

Is the person listed above the owner? [ ] Yes [x] No

Status of Applicant *(Check one)* [ ] Federal [ ] State [x] Private [ ] Public [ ] Other (specify) _____

2050

Section D - Existing or Pending Permits, Certifications, or Approvals: ☑ None

☒ MPDES Domestic Sanitation ☐ RCRA _____

☐ PSD (Air Emissions) _____ ☐ Other _____

☐ 404 Permit (dredge & fill) _____ ☐ Other _____

Section E – Standard Industrial Classification (SIC) Codes:

Provide at least one SIC code which best reflects the construction activity of project described in Section H.

Code	A. Primary	Code	B. Second
1	213	2	252
Code	**C. Third**	**Code**	**D. Fourth**
3	259	3	253

Section F - Facility or Site Contact Person/Position:

Name and Title, or Position Title Mike Wurz (Farm Manager)

Mailing Address Same as above

City, State, and Zip Code Same as above

Phone Number Same as above

Section G – Receiving Surface Waters(s):

Outfall/Discharge Locations: For each outfall, List latitude and longitude to the nearest second and the name of the receiving waters

Outfall Number	Latitude	Longitude	Receiving Surface Waters
001	48.8084	-109.7739	001 Stanton Coulee
002	48.7988	-109.7692	002 Unnamed Reservoir
003			
004			
005			

Map: Attach a topographic map extending one mile beyond the property boundaries or the site activity identified in Section B depicting the facility or activity boundaries, major drainage patterns, and the receiving surface waters, stated above. Also identify the specific location of the production area, and land application area(s).

Is the receiving water on the 303(d) list for nutrients (nitrogen and/or phosphorus) ☐ Yes ☑ No

Section H – Concentration Animal Feeding Operation Characteristics

Waste Production, Storage and Disposal

Animal type	Number in Open Confinement	Number Housed Under Roof
☐ Mature Dairy Cows		
☐ Dairy Heifers		
☐ Veal Calves		
☐ Cattle (not dairy or veal)		
☑ Swine (55 lbs or over)		1800
☑ Swine (55 lbs or under)		40560
☐ Horses		
☐ Sheep or Lambs		
☐ Turkeys		150
☐ Chickens (broilers)		500
☐ Chickens (layers)		30,000
☐ Ducks		250
☐ Other (Specify: Pullets)		15000
☐ Other (Specify:)		
☐ Other (Specify:)		

Manure, Litter and/or Wastewater Production and Use.

How much manure, litter, and process wastewater is generated annually by the facility?

Solid (tons): 1375 Liquid/Slurry (gallons): 3,215,000

If land applied, how many acres of land under control of the permit applicant are available to apply the manure, litter, or process wastewater generated from the facility? (Note: Do not include setback distances in available acreage

2559 Acres

How much manure, litter, and process wastewater is transferred to other persons per year? (estimated) Solid (tons): none Liquid/Slurry (gallons): none

Were the containment structures built after February 2006?

Y ☑ Do the waste containment structures have 10 feet of separation between the pond bottom and any bedrock formations?

Y ☑ Do the waste containment structures have 4 feet of separation from the pond bottom and any ground water?

NO ☐ Were any of the waste containment structures built within 500 feet of any existing well?

Type of Containment/Storage	Total Capacity	Units (gallons or tons)	Days of Storage
☐ Anaerobic Lagoon			
☐ Storage Pond #1			
☐ Storage Pond #2			
☐ Storage Pond #3			
☐ Storage Pond #4			
☐ Storage Pond #5			
☐ Above Ground Storage Tank			
☑ Below Ground Storage Tank #1	2,704,446	gallons	307 days
☐ Below Ground Storage Tank #2			
☑ Underfloor Pits	348,124	gallons	40 days
☐ Roofed Storage Shed			
☐ Concrete Pad			
☑ Impervious Soil Pad	1500	tons	>365
☑ Other (Specify: Isolation pits)	16,724	gallons	2 days
☐ Other (Specify: total liquid storage)	(3,069,297)	(gallons)	(349 days)

Physical Data for CAFO

Nutrient Management Plan

All Concentrated Animal Feeding Operations seeking permit coverage after July 31, 2007 are required to complete and implement a Nutrient Management (NMP). The NMP must be submitted to the Department using the form provided by the Department (Form NMP). Check the box below that applies and provide the required information. The NMP must be developed in accordance with ARM 17.30.1334 and implemented upon the effective date of permit coverage. (Check One)

☑ Does the facility have an NMP?

Date NMP was developed: 5-22-15

Date NMP was last modified: _____

☐ NMP has not been prepared; provide detailed explanation below

Section I – Supplemental Information

Section J - CERTIFICATION

Permittee Information:

This Form NMP must be completed, signed, and certified as follows:

- For a corporation, by a principal officer of at least the level of vice president;
- For a partnership or sole proprietorship, by a general partner or the proprietor, respectively; or
- For a municipality, state, federal, or other public facility, by either a principal executive officer or ranking elected official.

All Permittees Must Complete the Following Certification:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information; including the possibility of fine and imprisonment for knowing violations. [75-5-633, MCA]

A. Name (Type or Print)		
Horizon Colony Mike M. Wurz		
B. Title (Type or Print)	C. Phone No. ext 108 406-336-2961	
farm manager		
D. Signature	E. Date Signed	
Mike M. Wurz	5-23-15	

The Department will not process this form until all of the requested information is supplied, and the appropriate fees are paid. Return this form (NOI) and the applicable fee to:

Department of Environmental Quality
Water Protection Bureau
PO Box 200901
Helena, MT 59620-0901
(406) 444-3080

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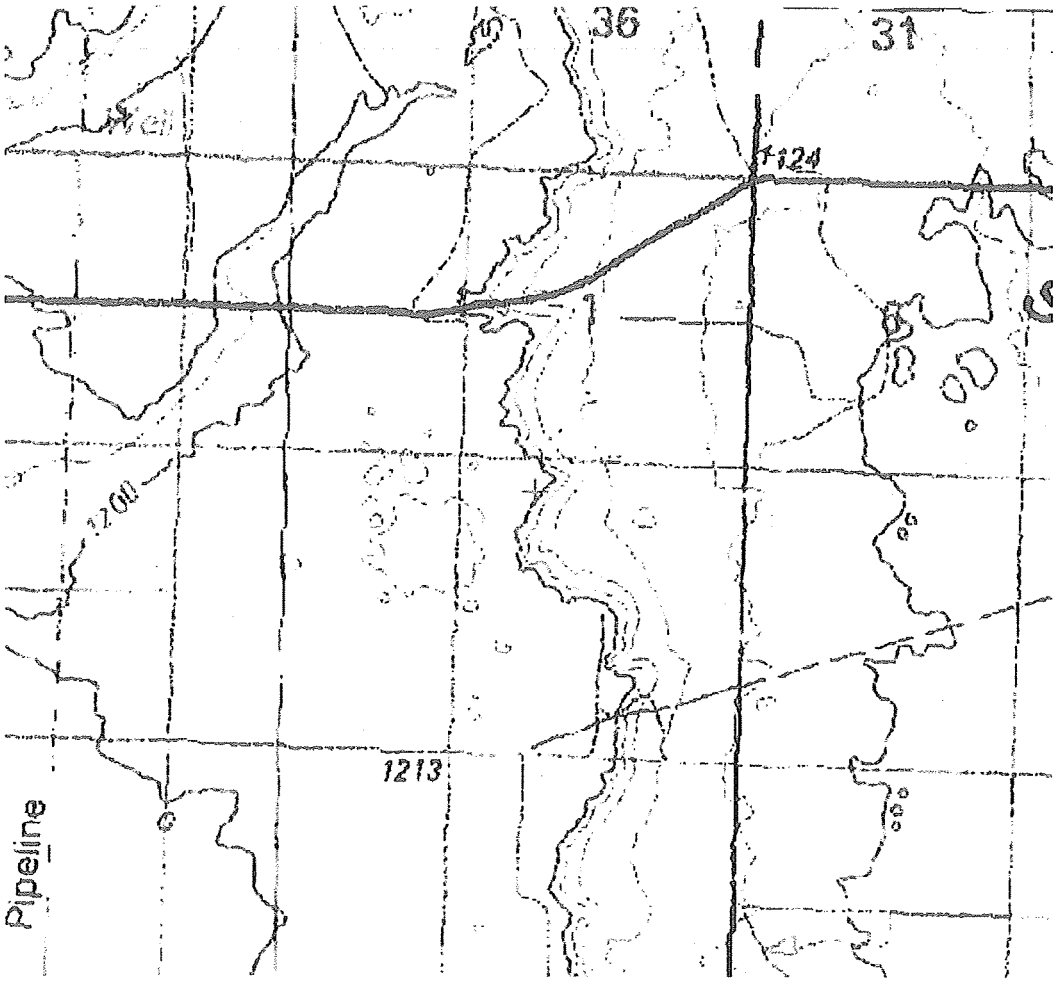
Please note that the Mon[illegible]na Topographic Map Fin[illegible]r has been slated for retirement on August 7, 2015. Please view the full announcement here.

Montana Topographic Map Finder

The map is 3.68 miles wide.

If you make a map less than three miles wide, you may choose to view aerial photographs instead of topographic maps.



Select a Map Control, then click on the map

Map Controls

ZoomIn Zoom Factor 2

ZoomOut

New Center State View

Map Center Coordinates at Red +

Datum: NAD83 NAD27

Decimal Degrees
Lat 48.72403 Long -112.20527

State Plane
E 401030 N 500617

UTM Zone 12
E 411358 N 5397479

US National Grid
12U VU 11358 97479

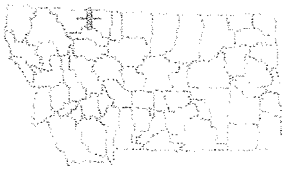
TRS T34N R5W S12

Hydrologic Unit 10030203
Marias River

Download 24K quadrangle: Ethridge NW

Download 100K quadrangle: Cut Bank

Click the small map to move the main map center.



Legend | Help

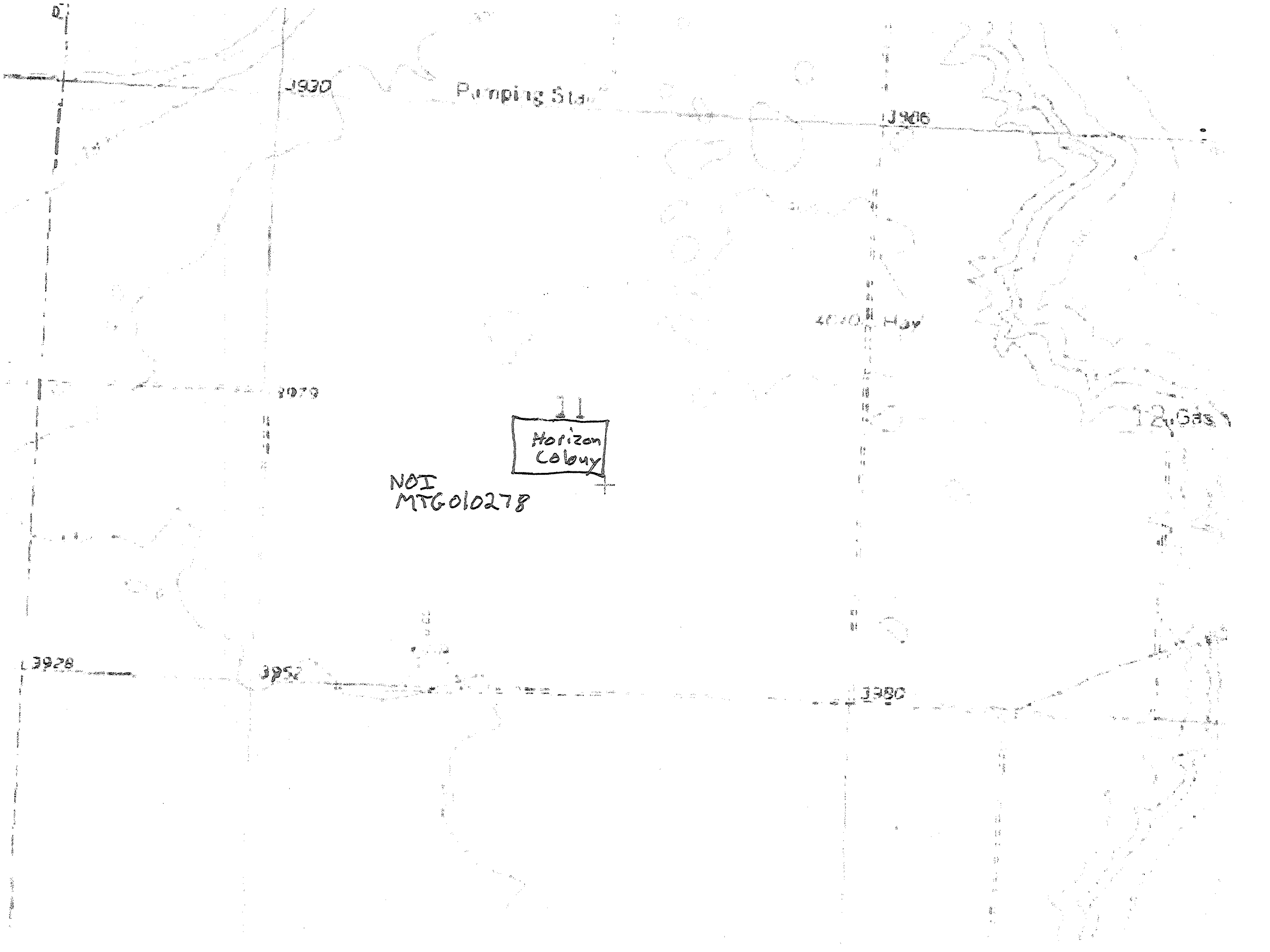
Map Size: Extra Large Large Small Refresh

Search Tools

Click here **to view other map data for this area.**

State Library

Technical questions about the application can be directed to geoinfo@mt.gov
Please let us know if you have problems with the Topofinder!!


3930
Pumping Sta
3906
4020 Hay
3979
Horizon
Colony
NOI
MTG010278
12
3928
3952
3980

AGENCY USE ONLY				
PERMIT NO.:	Date Rec'd.:	Amount Rec'd.:	Check No.:	Rec'd By:

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Montana Department of
ENVIRONMENTAL QUALITY

WATER PROTECTION BUREAU

FORM
NMP

Nutrient Management Plan

READ THIS BEFORE COMPLETING FORM: Before completing this form (Form NMP), Concentrated Animal Feeding Operation (CAFO) operators need to read the General Permit, particularly Part IV.A. CAFO operators also need to read the "Instructions For filling out Form NMP," found at the back of this form. Form NMP is intended to help CAFO operators develop a site-specific Nutrient Management Plan, in compliance with Part IV.A of the General Permit and all applicable State rules and statutes. Your Nutrient Management Plan must be maintained at the site as required in Part III of the General Permit. Sections B and C on your Form NMP must state the information exactly the same way as it was stated on the most recently submitted version of your NOI-CAFO. Attach additional pages as necessary, indicating the corresponding section number on this NMP form. The 2013 General Permit, current fee schedule, and related forms are available from the Water Protection Bureau at (406) 444-3080 or http://www.deq.mt.gov/wqinfo/MPDES/CAFO.asp

Section A – NMP Status:

- [x] New — No prior NMP submitted for this site.
- [ ] Resubmitted — Previous NMP found incomplete.
- [ ] Modification — Change or update to existing NMP.
- [ ] New 2013 — New 2013 version of NMP.

Section B – Facility Information:

Facility Name Horizon Colony

Facility Location (34N-5W-S11) 100 Horizon Rd. Cut bank, MT

Nearest City of Town Cut Bank County Glacier

Section C – Applicant (Owner/Operator Information):

Owner or Operator Name Mike Wurz

Mailing Address PO Box 819

City, State, and Zip code Glacier, MT 59427

Facility Phone Number 1-406-336-2961

Email

Section D – NMP Minimum Elements:

1. Livestock Statistics		
Animal Type and number of animals	**# of Days on Site (per year)**	**Annual Manure Production (tons, cu. yds. or gal**
1. Sows 1350	365	1,300,000 gal
2. Boars/Gilts 450	365	215,000 g
3. Nursery piglets 40,560	365	1,700,000 g
4. Turkeys 150	180	10 tons
5. Fryers 500	365	17 tons
6. layers 30000	365	822 tons
7. Pullets 15000	365	521 tons
8. Ducks 250	90	5 tons

Method used for estimating annual manure production:

DEQ 9 production tables adjusted for animal size as piglets are sold at 12.5 pounds.
Liquid - 3,215,000 gallons
Solids - 1375 tons

2. Manure Handling

a. Describe Manure handling at the facility:
Liquid manure gravity flows to underfloor storage tank then pumped as needed to fields. Solid manure is scraped and stored on an impervious soil stacking pad. Solid waste is applied by spreader to fields before crop production or after harvest. Liquid manure is injected directly to the fields via drag hose and tool bar before crop production or after harvest.

b. Frequency of Manure Removal from confinement areas:
Injection and Solid waste applications occur before and after crop production

c. Is this manure temporarily stored in any location other than the confinement area? ☐ Yes ☑ No
If so then how and where?

d. Is manure stored on impervious surface? ☑ Yes ☐ No
If yes, describe type and characteristics of this surface:

Iso Wing storage tank holds more than 180 days of production.. Poultry manure is stored on a compacted earth stacking pad.

3. Waste Control Structures					
Waste Control Structures (name/type)	**Length (ft.)**	**Width (ft.)**	**Depth (ft.)**	**Volume (cubic ft. or gallons)**	**Number of days of storage**
1. Isolation Pits	40 ft	25 ft	2 ft	16,724 g	1d from total
2. Farrow Barn	316 ft	75 ft	2 ft	348,124 g	25 from total
3. G-Barn Tank	510 ft	80 ft	9 ft	2,704,463 g	197 days
4. Storage pad	100 ft	50 ft	6 ft	1500 tons	>365 days
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					

What is the 24 hr. 25 yr. storm event at this facility 3 inches WRCC Cut Bank

Production area: < 5 **acres. Type of lot (dirt or paved):** dirt/gravel

Area contributing drainage form outside CAFO that enters confinement areas and waste storage, conveyance, or treatment structures: < 5 **acres.**

What is the annual precipitation during the critical storage period 1.12 inches WRCC Cut Bank

How much freeboard do the pond(s) have No Ponds

4. Disposal of Dead Animals.

Describe how dead animals are disposed of at this facility:

Animals are buried in a disposal pit and covered by soil within 48 hours of disposal.

never spray irrigating waste on to frozen ground: consulting with the Department prior to applying any liquid waste to frozen or snow-covered ground; applying wastes at agronomic rates.

Land Application BMP's

Liquid manure is applied by direct injection. A minimum of 30 feet is maintained for manure application set backs as needed. Grass filters are present along drainage ways and field borders. See maps for locations. Solid manure is applied in the summer and fall before freeze up at agronomic rates.

Buffers	☑ Yes ☐ No	**Conservation Tillage**	☑ Yes ☐ No
Constructed Wetlands	☐ Yes ☐ No	**Grass Filter**	☑ Yes ☐ No
Infiltration Field	☐ Yes ☐ No	**Residue Management**	☑ Yes ☐ No
Set backs	☑ Yes ☐ No	**Terrace**	☐ Yes ☐ No

Other examples

8. Implementation, Operation, Maintenance and Record Keeping – Guidance

The permittee is required to develop guidance addressing implementation of NMP, proper operation and maintenance of the facility, and record keeping as described in Part 2 of the permit.

Has a guidance document been developed for the facility? ☑ Yes ☐ No

Certify the document address the following requirements:

Implementation of the NMP:	☑ Yes ☐ No
Facility operation and maintenance:	☑ Yes ☐ No
Record keeping and reporting	☑ Yes ☐ No
Sample collection and analysis:	☑ Yes ☐ No
Manure transfer	☐ Yes ☑ No

Provide name, date and location of most recent documentation:
MT DEQ Circular 9 Guidance Document (Colony)
MSU Extension service CAFO record keeping Sheets last updated December 2012. (Colony)
Agri-Trend Laboratories January 2015 Soils. (Colony)
Midwest Laboritories May 2014 Manure. (Colony)

If your answer to any of the above question is no, provide explanation:
All manure is field applied within this Nutrient Management plan. No manure is transferred to a second party.

Horizon Colony MT-2010278

Section E – Land Application

Will manure be land applied to land either owned, rented, or leased by the owner or operator of the facility?

☑ Yes If yes, then the information requested in Section E must be provided.

☐ No If no, then provide an explanation of how animal waste at this facility are managed.

See attached maps (poultry manure is applied by pull type spreader)

Photos and/or Maps

Attach an aerial photograph or map of the site where manure is to be applied. (Use multiple photos/maps if necessary to show required details.) The photo(s)/map(s) must be printed on no larger than an 11"X 17" piece of paper, and must clearly identify the following items:

- Individual field boundaries for all planned land application areas
- A name, number, letter or other means of identifying each individual land application field
- The location of any downgradient surface waters.
- The location of any downgradient open tile line intake structures
- The location of any downgradient sinkholes
- The location of any downgradient agricultural well heads
- The location of all conduits to surface waters
- The specific manure/waste handling or nutrient management restrictions associated with each land application field
- The soil type(s) present and their locations within the individual land application field(s)
- The location of buffers and setbacks around state surface waters, well heads, etc.

Land Application Equipment Calibration

Describe the type of equipment used to land apply wastes and the calibration procedures:

Drag hose injector system and a solid spreader pulled by a tractor. Flow Meter and DEQ 9 procedure.

Manure Sampling and Analysis Procedures

A representative manure sample will be analyzed a minimum of once annually for Total Nitrogen, and Total Phosphorus. Analysis results will be reported in lbs/ton or lbs/1,000 gal. Results of these analyses will be used in determining rates for manure, litter, and process wastewater.

Manure Sample collection will occur according to ARM 17.30.1334

Other (describe)

Manure is sampled annually per DEQ-Circular 9 procedure and submitted to Midwest Labs

Soil Sampling and Analysis Procedures

Representative soil (composite) samples from the top 6 inches layer of soil for each field where manure will be applied must be analyzed for phosphorus content at least once every three years. Analyses will be conducted by a qualified laboratory, using the Olsen P test. Results will be reported in parts per million (ppm) and will be used in determining application rates for manure, litter, and process wastewater

Soil samples collection will occur according the methods in ARM 17.30.1334

Other (describe)

All fields receiving manure are annually sampled per DEQ-Circular-9 guidelines.

Phosphorus Risk Assessment

The permittee shall access the risk of phosphorus contamination of state waters. An assessment shall be conducted for each field, under the control of the operator, to which manure, litter or process wastewater will or

may be applied. If a new field is added in the future, then the permittee must submit a revised (modified) NMP. The permittee has the option of using Method A or Method B (below) to complete the assessment. Copies of all tables and calculations used to complete the assessments, as well as the results of the assessments, shall be submitted to the Department and copies shall be maintained on-site at the facility and available for Departmental review. The results of the assessments shall be used to determine the appropriate basis for land application of wastes from the facility.

Method Used

Indicate which method will be used to determine phosphorus application:

Method A – Representative Soil Sample
Method B – Phosphorus Index

Method A – Representative Soil Sample

a. Obtain one or more representative soil sample(s) from the field per 17.30.1334
b. Have the sample analyzed for Phosphorus by a qualified lab. The "Olsen P test" must be used for the analysis, and the result must be reported in parts per million (ppm)
c. Using the results of the Olsen P test, determine application basis according to the Table below.

Soil Test

Olsen P Soil Test Results (ppm)	Application Basis
<25.0	Nitrogen Needs of Crop
25.1 - 100.0	Phosphorus Needs of Crop
100.0 – 150.0	Phosphorus Needs up to Crop Removal Rate
>150.0	No Application allowed

Method B – Phosphorus Index

a. Complete a phosphorus Index according to the crop grown on each field. Complete table in Appendix A to calculate phosphorus index. For information on filling out specific sections in Appendix A, please refer to the method as described in Natural Resource Conservation Service (NRCS), Agronomy Technical Note MT-77 (rev3), January 2006.
b. Using the calculated Total Phosphorus Index Value, assign the overall site/field vulnerability to phosphorus loss according to the table below.

Total Phosphorus

Total Phosphorus Index Value	Site Vulnerability to Phosphorus Loss
<11	Low
11-21	Medium
22-43	High
>43	Very High

c. Using the calculated Site Vulnerability to Phosphorus Loss, determine the appropriate application basis according to the table below.

Site Vulnerability to Phosphorus Loss	Application Basis
Low	Nitrogen Needs
Medium	Nitrogen Needs
High	Phosphorus Need Up to Crop Removal
Very High	Phosphorus Crop Removal or No Application

The applicant has 2 ways in which to report how manure or process wastewater application rates can be reported to DEQ.

1. **Linear Approach**. Expresses rates of application as pounds of nitrogen and phosphorus. CAFOs selecting the linear approach to address rates of application must include in the NMP submitted to the permitting authority the following information for each crop, field, and year covered by the NMP, which will be used by the permitting authority to establish site-specific permit terms:
- The maximum application rate (pounds/acre/year of nitrogen and phosphorus) from manure, litter, and process wastewater.
- The outcome of the field-specific assessment of the potential for nitrogen and phosphorus transport from each field. [If a state does not have an N transport risk assessment, the NMP must document any basis for assuming that nitrogen will be fully used by crops.] The CAFO must specify any conservation practices used in calculating the risk rating.
- The crops to be planted or any other uses of a field such as pasture or fallow fields.
- The realistic annual yield goal for each crop or use identified for each field.
- The nitrogen and phosphorus recommendations from in ARM 17.30.1334 (technical standard) for each crop or use identified for each field.
- Credits for all residual nitrogen in each field that will be plant-available.
- Consideration of multi-year phosphorus application. For any field where nutrients are applied at a rate based on the crop phosphorus requirement, the NMP must account for single-year nutrient applications that supply more than the crop's annual phosphorus requirement.
- All other additions of plant available nitrogen and phosphorus (i.e., from sources other than manure, litter, or process wastewater or credits for residual nitrogen).
- The form and source of manure, litter, and process wastewater to be land-applied.
- The timing and method of land application. The NMP also must include storage capacities needed to ensure adequate storage that accommodates the timing indicated.
- The methodology that will be used to account for the amount of nitrogen and phosphorus in the manure, litter, and wastewater to be applied.
- Any other factors necessary to determine the maximum application rate identified in accordance with this Linear Approach.

2. **Narrative Rate Approach**. Expresses a narrative rate of application that results in the amount, in tons or gallons, of manure, litter, and process wastewater to be land applied. CAFOs selecting the narrative rate approach to address rates of application must include in the NMP submitted to the permitting authority the following information for each crop, field, and year covered by the NMP, which will be used by the permitting authority to establish site-specific permit terms:
- The maximum amounts of nitrogen and phosphorus that will be derived from all sources of nutrients (pounds/acre for each crop and field).
- The outcome of the field-specific assessment of the potential for nitrogen and phosphorus transport from each field. The CAFO must specify any conservation practices used in calculating the risk rating.
- The crops to be planted in each field or any other uses of a field such as pasture or fallow fields, including alternative crops if applicable. Any alternative crops included in the NMP must be listed by field, in addition to the crops identified in the planned crop rotation for that field.
- The realistic annual yield goal for each crop or use identified for each field for each year, including any alternative crops identified.
- The nitrogen and phosphorus recommendations from ***[the permitting authority to specify acceptable sources]*** for each crop or use identified for each field, including any alternative crops identified.
- The methodology (including formulas, sources of data, protocols for making determination, etc.) and actual data that will be used to account for: (1) the results of soil tests required by Parts II.A.4.b and III.A.3.g of this

permit, (2) credits for all nitrogen in the field that will be plant- available, (3) the amount of nitrogen and phosphorus in the manure, litter, and process wastewater to be applied, (4) consideration of multi-year phosphorus application (for any field where nutrients are applied at a rate based on the crop phosphorus requirement, the methodology must account for single-year nutrient applications that supply more than the crop's annual phosphorus requirement), (5) all other additions of plant available nitrogen and phosphorus to the field (i.e., from sources other than manure, litter, or process wastewater or credits for residual nitrogen), (6) timing and method of land application, and (7) volatilization of nitrogen and mineralization of organic nitrogen.
◦ Any other factors necessary to determine the amounts of nitrogen and phosphorus to be applied in accordance with the Narrative Rate Approach.
◦ NMPs using the Narrative Rate Approach must also include the following projections, which will not be used by the permitting authority in establishing site-specific permit terms:
i. Planned crop rotations for each field for the period of permit coverage.
ii. Projected amount of manure, litter, or process wastewater to be applied.
iii. Projected credits for all nitrogen in the field that will be plant-available.
iv. Consideration of multi-year phosphorus application.
v. Accounting for other additions of plant-available nitrogen and phosphorus to the field.
vi. The predicted form, source, and method of application of manure, litter, and process wastewater for each crop

◦ If the receiving water is on the 303(d) list for nutrients then the narrative rate approach must be used.

a. For the Linear Approach the permittee will complete the Nutrient Budget Worksheet, below, for the next 5 years to which manure or process waste water is or may be applied. A copy of each Nutrient Budget Worksheet will be maintained on site, and a copy will be submitted to the Department.

Nutrient Budget Worksheet

Field identification: Colony So. Year: 2016 Crop: Spring Wheat					
Expected Crop Yield: 50 Bushels/acre					
Phosphorus index results or Phosphorus application from soil test: 8 PPM P Soil test					
Method of Application: Solid Spreader not incorporated within 3 days.					
When will application occur: September/October 2015					
Nutrient Budget			Nitrogen-based Application	Phosphorus-based Application	Source of information
1		Crop Nutrient Needs, lbs/acre	165 lbs	31 lbs	EB161
2	(-)	Credits from previous legume crops, lbs/ac	22 lbs	NA	Soil Test N
3	(-)	Residuals from past manure production lbs/acre	NA	NA	First Application
4	(-)	Nutrients supplied by commercial fertilizer and Biosolids, lbs/acre	28 lbs	O	60 lbs Urea
5	(-)	Nutrients supplied in irrigation water, lbs/acre	NA	NA	
6		**= Additional Nutrients Needed, lbs/acre**	115 lbs	31 lbs	EB 161 Table 21
7		Total Nitrogen and Phosphorus in manure, lbs/ton or lbs/1000 gal (from manure test)	17 lbs/ton	32 lbs/ton	Midwest Lab
8	(x)	Nutrient Availability factor, for Phosphorus based application use 1.0	.6	1	NRCS DEQ-9
9		**= Available Nutrients in Manure, lbs/ton or lbs/1000 gal**	10.2 lbs/ton	32 lbs/ton	
10		Additional Nutrients needed, lbs/acre (calculated above)	115 lbs	31 lbs	
11	(/)	Available Nutrients in Manure, lbs/ton or lbs/1000 gal (calculated above)	10.2 lbs/ton	32lbs/ton	
12		**= Manure Application Rate, tons/acre or 1000 gal/acre**	11.3 tons/acre	NA	(Nitrogen Based)

Comments:

Poultry Manure - nitrogen based application for soil sampled field south of Colony. (11.3 tons/acre) is the target application rate. (All fields receive individual application rates)

Nutrient Budget Worksheet

Field identification: Example Year: Example Crop: Spring Wheat					
Expected Crop Yield: 50 Bushels/acre					
Phosphorus index results or Phosphorus application from soil test: 26 PPM P Soil test					
Method of Application: Toolbar Sweep Injection (90 % efficiency)					
When will application occur: October					
Nutrient Budget			Nitrogen-based Application	Phosphorus-based Application	Source of information
1		Crop Nutrient Needs, lbs/acre	165 lbs	31 lbs	EB 161, Table 21
2	(-)	Credits from previous legume crops, lbs/ac	22 lbs	NA	Soil Test N
3	(-)	Residuals from past manure production lbs/acre	NA	NA	
4	(-)	Nutrients supplied by commercial fertilizer and Biosolids, lbs/acre	20 lbs	O	Starter Fert.
5	(-)	Nutrients supplied in irrigation water, lbs/acre	NA	NA	
6		**= Additional Nutrients Needed, lbs/acre**	123 lbs	31 lbs	EB 161 Table 21
7		Total Nitrogen and Phosphorus in manure, lbs/ton or lbs/1000 gal (from manure test)	30 lbs/1000	8.4 lbs/1000	Soils Lab
8	(x)	Nutrient Availability factor, for Phosphorus based application use 1.0	.90	1	NRCS
9		**= Available Nutrients in Manure, lbs/ton or lbs/1000 gal**	27 lbs/1000	8.4 lbs/1000	
10		Additional Nutrients needed, lbs/acre (calculated above)	123 lbs	31 lbs	
11	(/)	Available Nutrients in Manure, lbs/ton or lbs/1000 gal (calculated above)	27 lbs/1000	8.4/1000	
12		**= Manure Application Rate, tons/acre or 1000 gal/acre**	4555 gal/ac	3690 gal/ac	(Phos Based)

Comments:

This example shows the Phosphorus application as more limiting with 26 PPM (P) in the soil.

Section F - CERTIFICATION

Permittee Information: This form must be completed, signed, and certified as follows:

- For a corporation, by a principal officer of at least the level of vice president;
- For a partnership or sole proprietorship, by a general partner or the proprietor, respectively; or
- For a municipality, state, federal, or other public facility, by either a principal executive officer or ranking elected official.

All Permittees Must Complete the Following Certification:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information; including the possibility of fine and imprisonment for knowing violations. [75-5-633, MCA]

A. Name (Type or Print)	
Horizon Colony Mike M. Wurz	
B. Title (Type or Print)	**C. Phone No.** ext 108
farm manager	406-336-2961
D. Signature	**E. Date Signed**
Mike M. Wurz	5-23-15

The Department will not process this form until all of the requested information is supplied, and the appropriate fees are paid. Return this form and the applicable fee to:

Department of Environmental Quality
Water Protection Bureau
PO Box 200901
Helena, MT 59620-0901
(406) 444-3080

RECEIVED
MAY 29 2015
DEQ/WPB
PERMITTING & COMPLIANCE DIV.

United States Department of Agriculture

NRCS

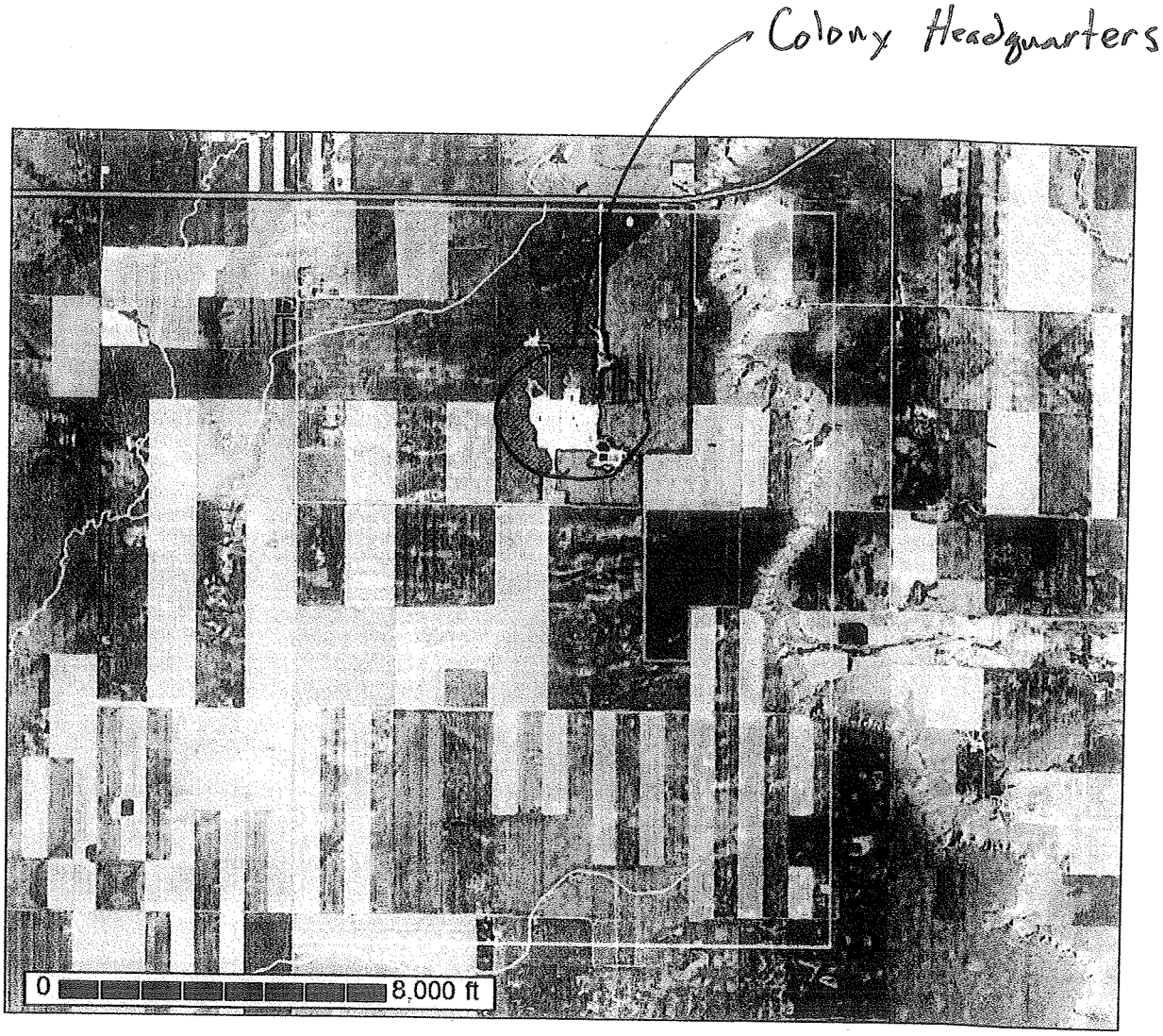
Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Glacier County Area and Part of Pondera County, Montana

Horizon Colony

MTG010278



July 10, 2015

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (http://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means

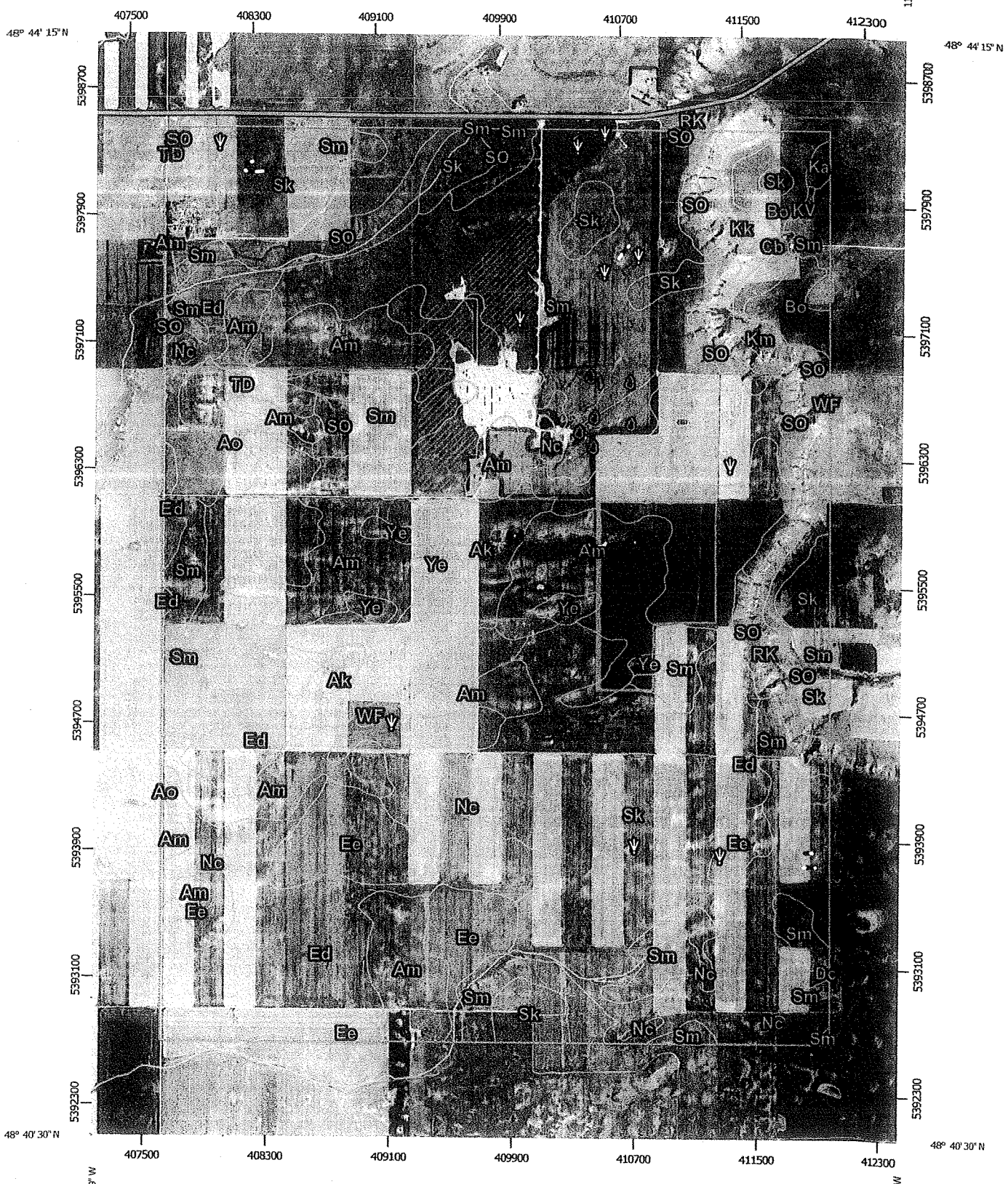
for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

Contents

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



Map Scale: 1:33,800 if printed on A portrait (8.5" x 11") sheet.

N

0 500 1000 2000 3000 Meters

0 1500 3000 6000 9000 Feet

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 12N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Glacier County Area and Part of Pondera County, Montana
Survey Area Data: Version 10, Sep 2, 2014

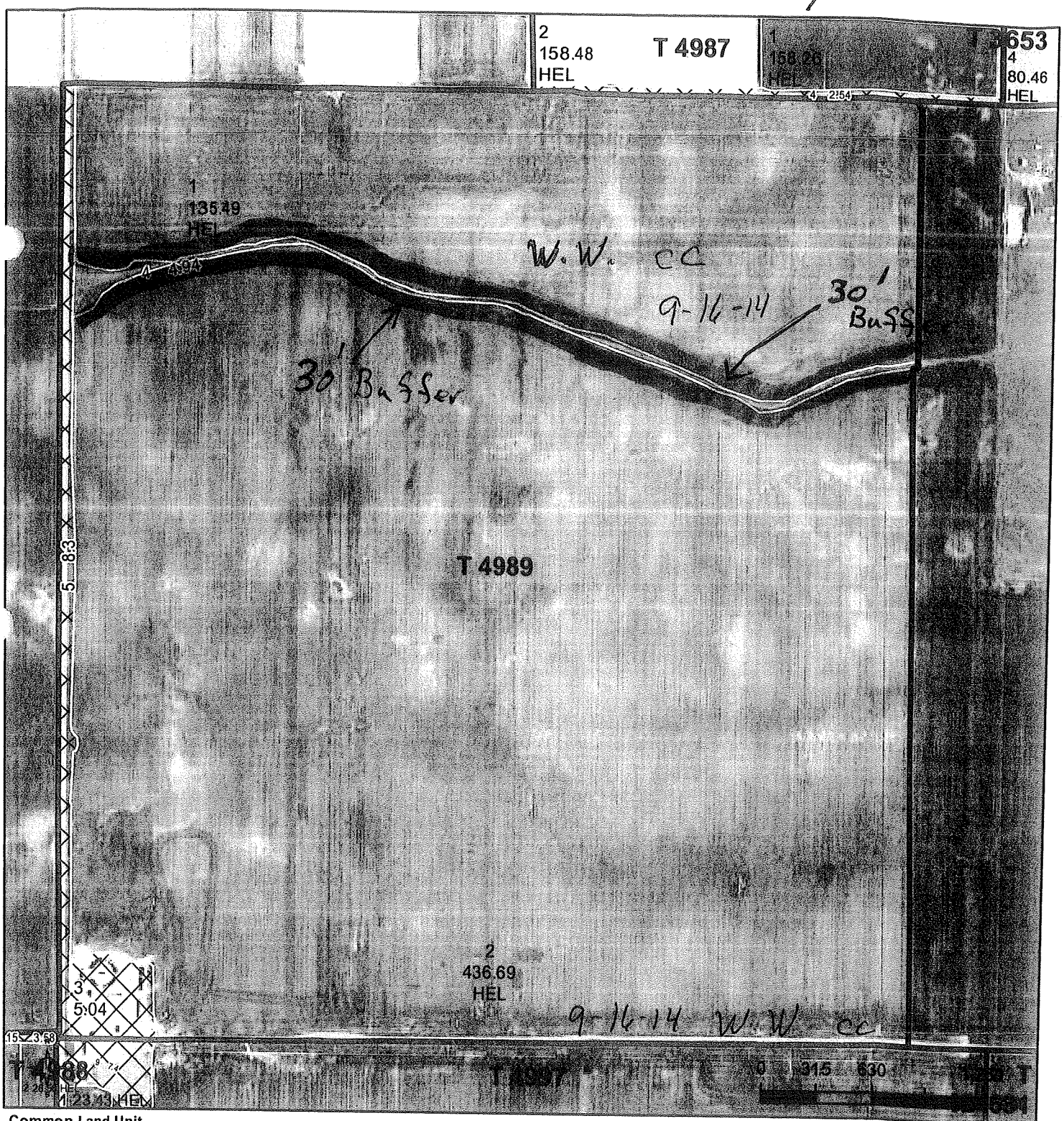
Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 15, 2011—Jul 18, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Glacier County Area and Part of Pondera County, Montana (MT600)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
Ak	Attewan sandy loam, 0 to 4 percent slopes	124.5	2.0%
Am	Attewan sandy loam, 4 to 8 percent slopes	849.1	13.6%
Ao	Attewan loam, 4 to 8 percent slopes	96.4	1.5%
Bo	Boxwell complex, undulating	98.2	1.6%
Cb	Cabba loam, hilly	8.6	0.1%
Dc	Dimmick clay	0.8	0.0%
Ed	Ethridge clay loam, sand substratum, 2 to 4 percent slopes	1,096.1	17.6%
Ee	Ethridge clay loam, sand substratum, 4 to 8 percent slopes	267.1	4.3%
Ka	Kevin loam, 2 to 4 percent slopes	8.8	0.1%
Kk	Kiev loam, shale substratum, 4 to 8 percent slopes	31.7	0.5%
Km	Kiev loam, shale substratum, 8 to 15 percent slopes	29.9	0.5%
KV	Korchea and Kiwanis soils	3.6	0.1%
Nc	Nishon clay loam	35.2	0.6%
RK	Rentsac-Rock outcrop complex, very steep	125.0	2.0%
Sk	Scobey-Kevin loams, undulating	1,733.1	27.8%
Sm	Scobey-Kevin loams, rolling	1,300.4	20.9%
SO	Scobey-Zahl complex, hilly	287.9	4.6%
TD	Tally complex, sloping	71.1	1.1%
WF	Wet land	5.5	0.1%
Ye	Yetull fine sand	53.3	0.9%
Totals for Area of Interest		**6,226.4**	**100.0%**

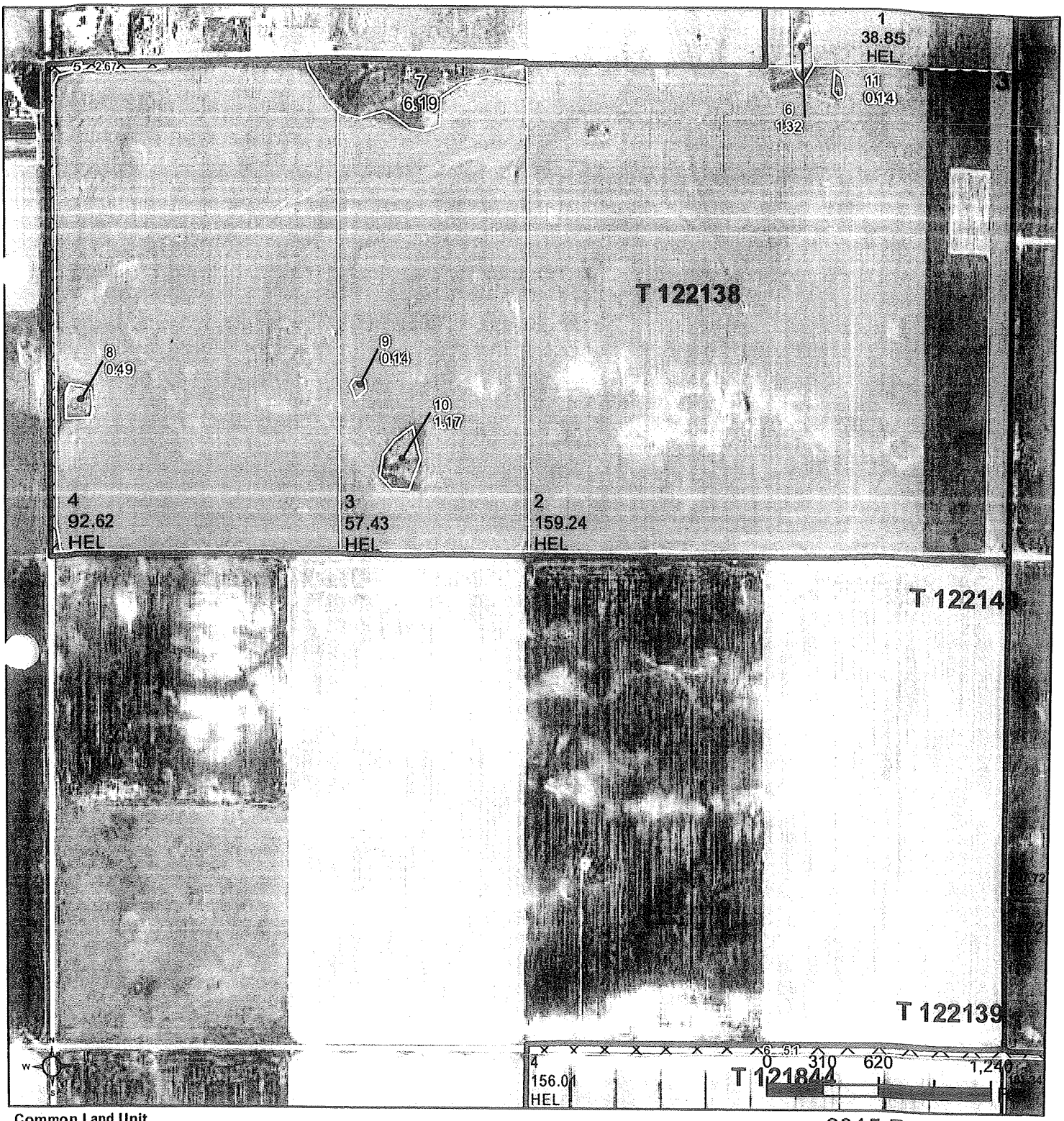


United States Department of Agriculture (USDA) Farm Service Agency (FSA) maps are for FSA Program administration only. This map does not represent a legal survey or reflect actual ownership; rather it depicts the information provided directly from the producer and/or National Agricultural Imagery Program (NAIP) imagery. The producer accepts the data 'as is' and assumes all risks associated with its use. USDA-FSA assumes no responsibility for actual or consequential damage incurred as a result of any user's reliance on this data outside FSA Programs. Wetland identifiers do not represent the size, shape, or specific determination of the area. Refer to your original determination (CPA-026 and attached maps) for exact boundaries and determinations or contact USDA Natural Resources Conservation Service (NRCS).

Horizon Colony

United States Department of Agriculture

Glacier County, Montana



Common Land Unit

Cropland · · · · Rangeland ╳ Other Use

Conservation Reserve Program

Wetland Determination Identifiers

- Restricted Use
- Limited Restrictions
- Exempt from Conservation Compliance Provisions

Tract Boundary

2015 Program Year

Map Created September 09, 2014

Farm 5852

10-34N-5W

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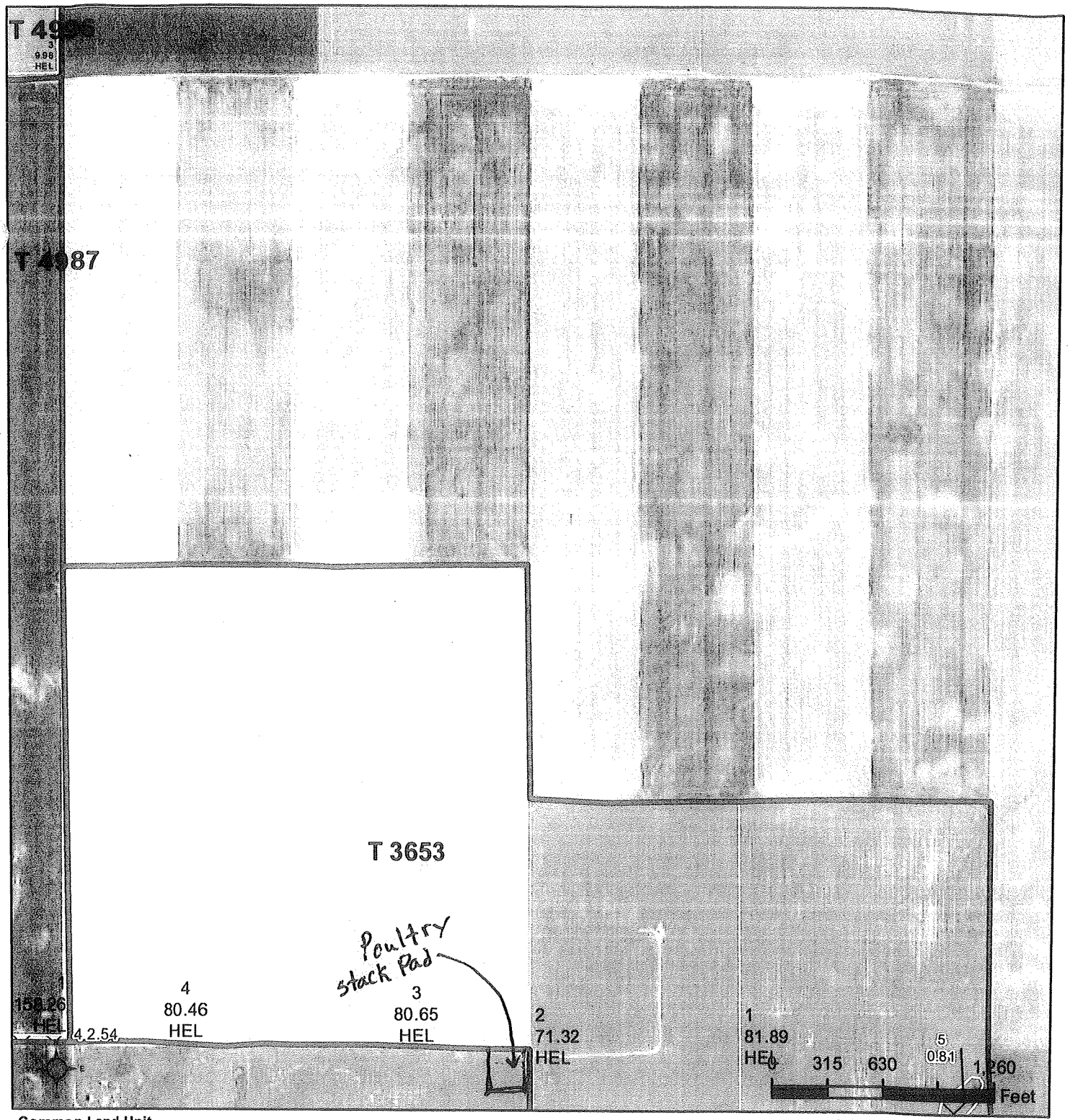
Horizon Colony

USDA United States Department of Agriculture

Glacier County, Montana



Common Land Unit

Cropland ···· Rangeland ╳ Other Use

Conservation Reserve Program

Wetland Determination Identifiers

- Restricted Use
- Limited Restrictions
- Exempt from Conservation Compliance Provisions

Tract Boundary

Spadable ac

311 acres

2015 Program Year

Map Created September 09, 2014

Farm 5845

23-34N-5W

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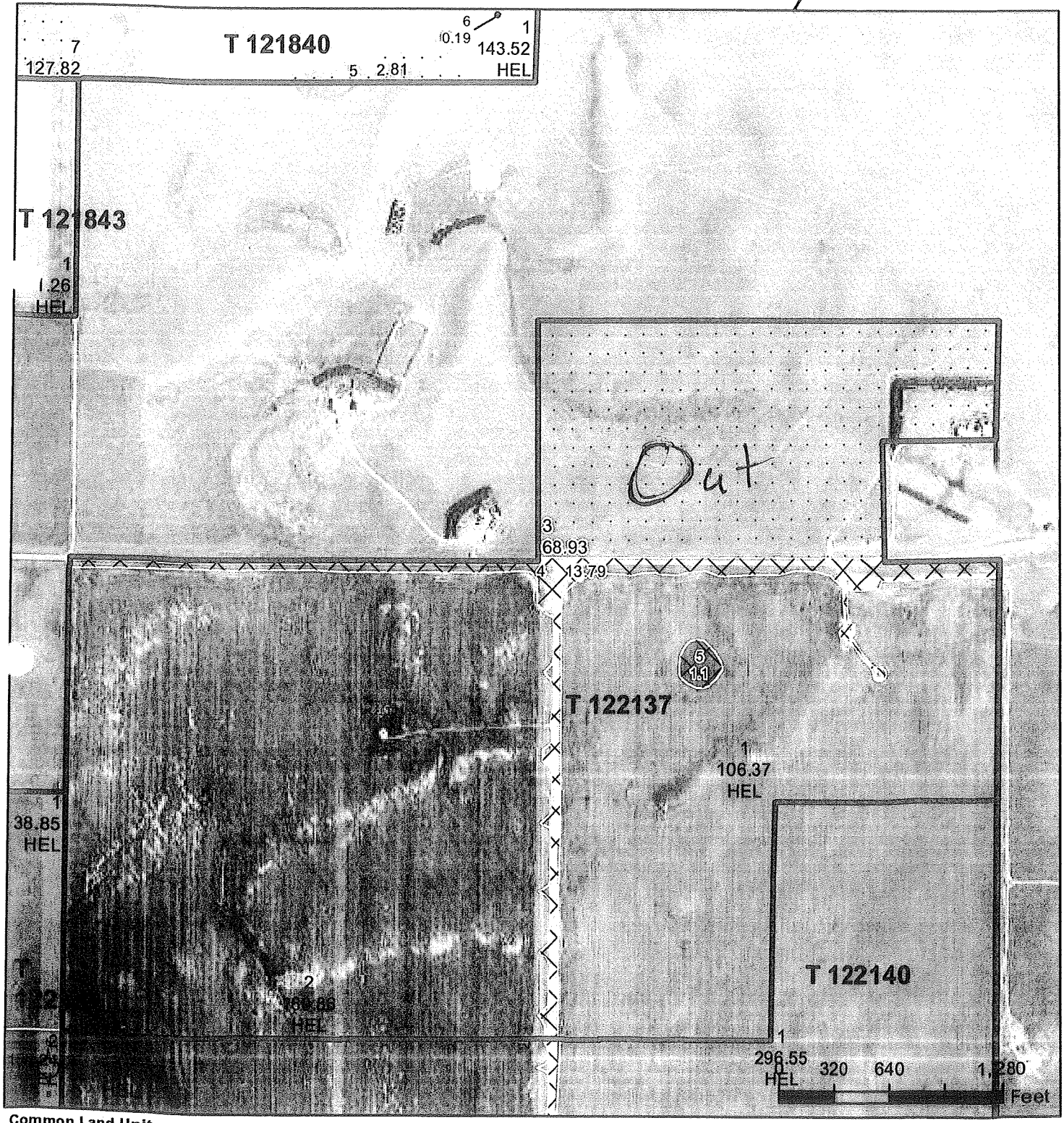
United States Department of Agriculture

Glacier County, Montana

Horizon Colony



Common Land Unit
Cropland · · · · Rangeland X Other Use
Conservation Reserve Program

Wetland Determination Identifiers
Restricted Use
Limited Restrictions
Exempt from Conservation Compliance Provisions

Tract Boundary

Spreadable acres

265 acres

2015 Program Year

Map Created September 09, 2014

Farm 5852

2-34N-5W

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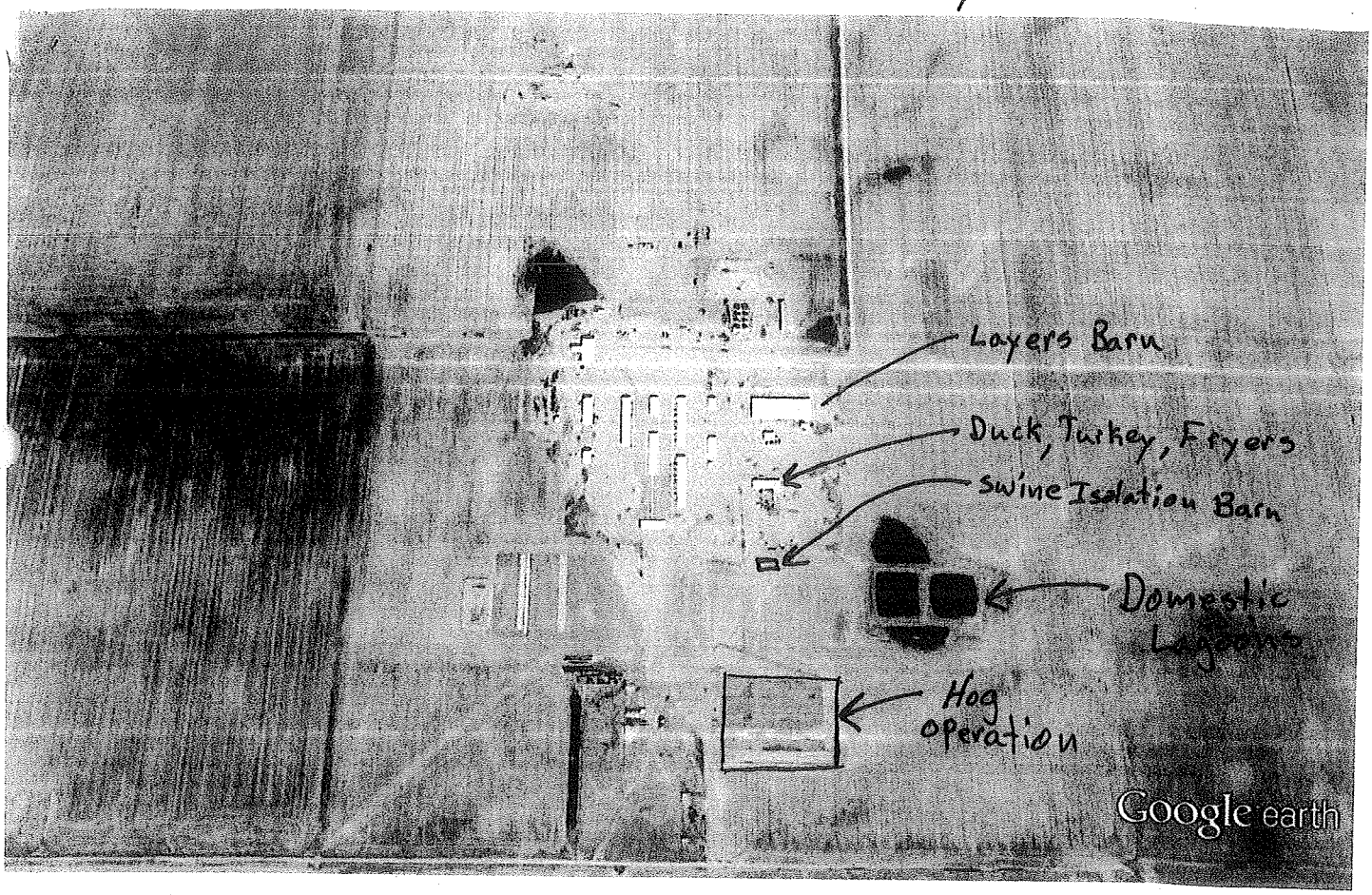
Horizon Colony



Google earth

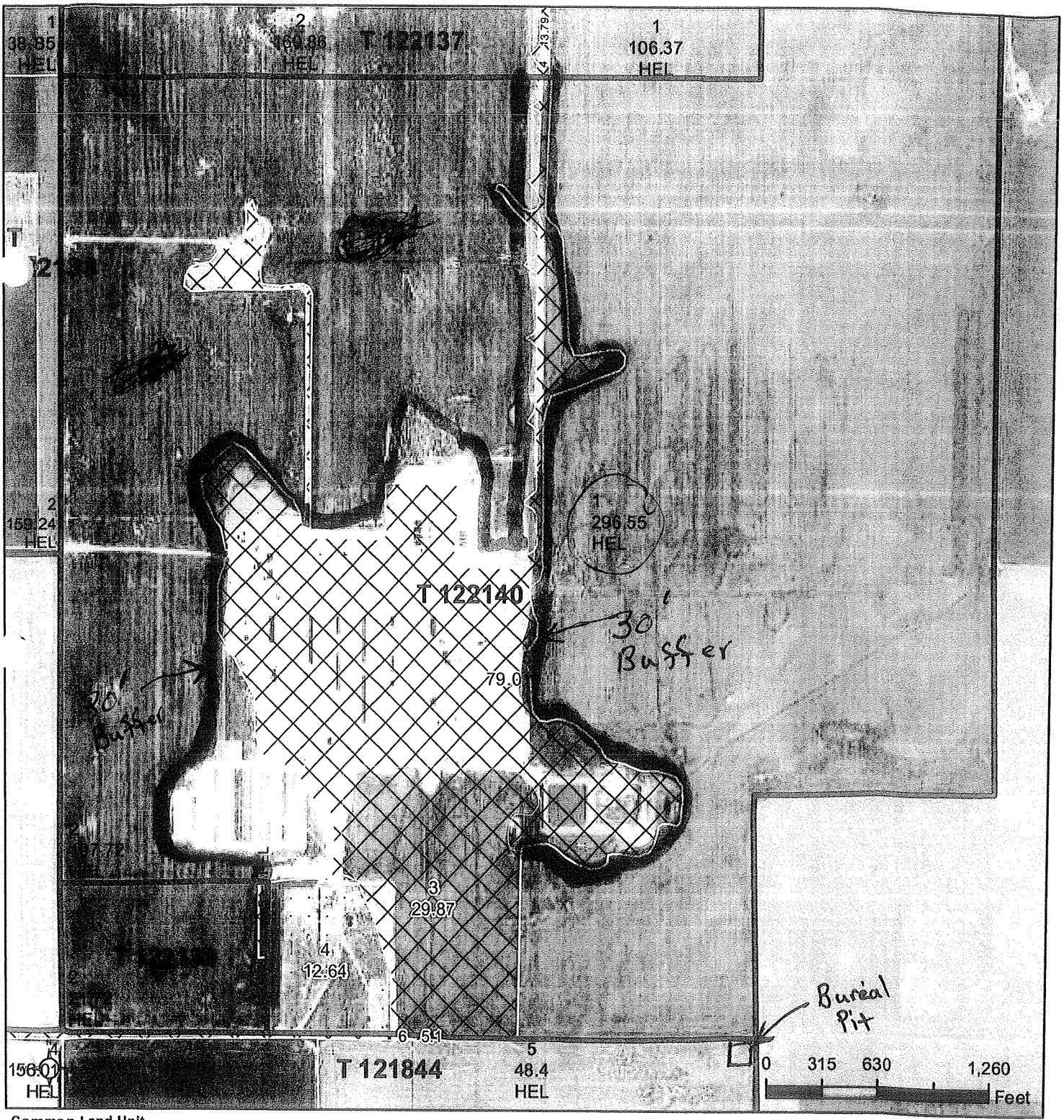
feet 3000
km 1

5-15-15

United States Department of Agriculture

Glacier County, Montana

Horizon Colony



Common Land Unit

Cropland · Rangeland · Other Use

Conservation Reserve Program

Wetland Determination Identifiers

- Restricted Use
- Limited Restrictions
- Exempt from Conservation Compliance Provisions

Tract Boundary

Spreadable acres

485 acres

2015 Program Year

Map Created September 09, 2014

Farm 5852

11-34N-5W

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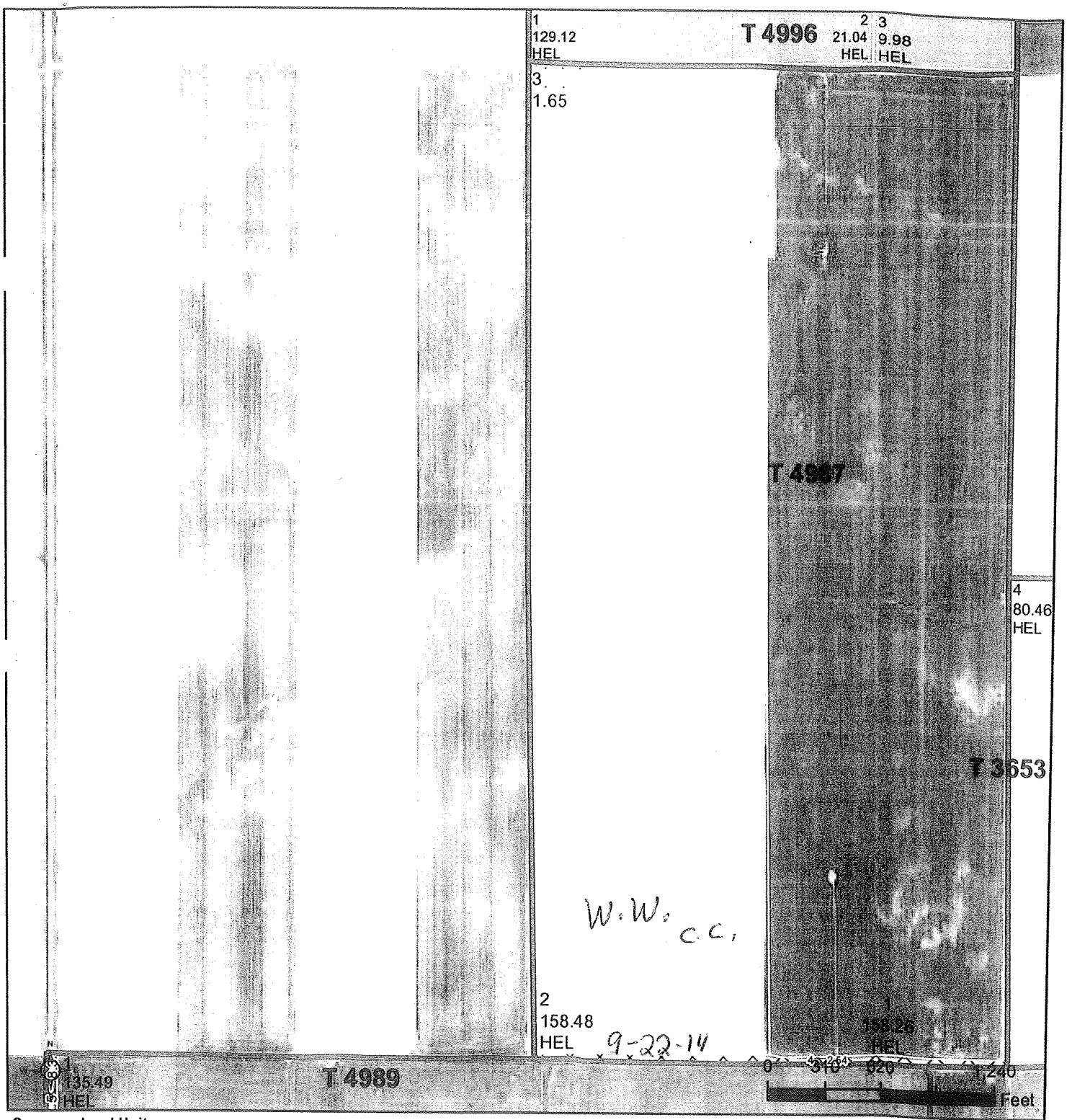
Horizon Colony

USDA United States Department of Agriculture

Glacier County, Montana



Common Land Unit

Cropland · · · · Rangeland ╳ Other Use

Conservation Reserve Program

Wetland Determination Identifiers

- Restricted Use
- Limited Restrictions
- Exempt from Conservation Compliance Provisions

Tract Boundary

Spreadable acres

316 ac

2015 Program Year

Map Created September 09, 2014

Farm 5845

22-34N-5W

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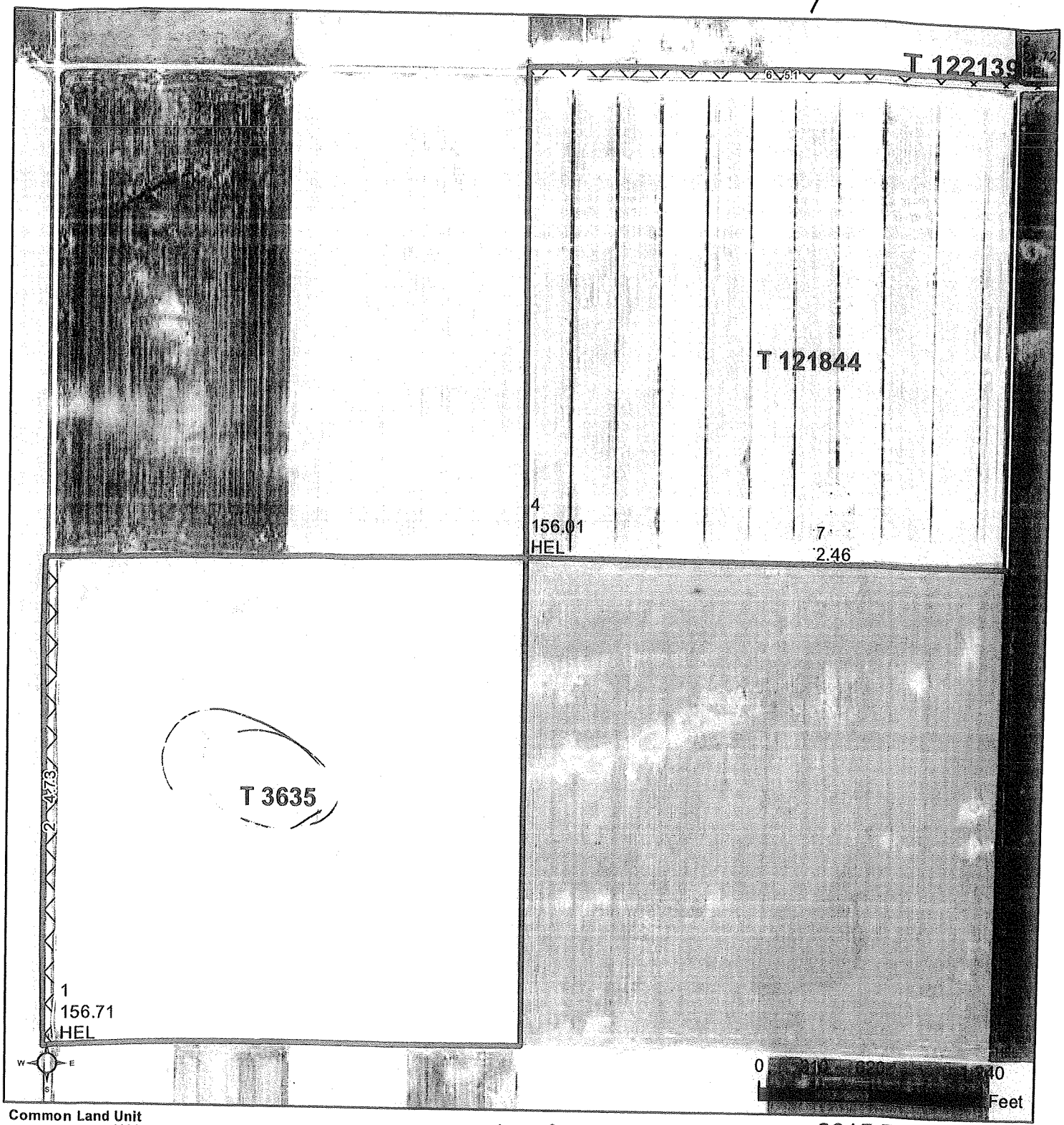
USDA United States Department of Agriculture

Glacier County, Montana

Horizon Colony



Common Land Unit

Cropland · · · · Rangeland X Other Use

Conservation Reserve Program

Wetland Determination Identifiers

- Restricted Use
- Limited Restrictions
- Exempt from Conservation Compliance Provisions

Tract Boundary

Spreadable acres

312 acres

2015 Program Year

Map Created September 09, 2014

Farm 5852

15-34N-5W

United States Department of Agriculture (USDA) Farm Service Agency (FSA) maps are for FSA Program administration only. This map does not represent a legal survey or reflect actual ownership; rather it depicts the information provided directly from the producer and/or National Agricultural Imagery Program (NAIP) imagery. The producer accepts the data 'as is' and assumes all risks associated with its use. USDA-FSA assumes no responsibility for actual or consequential damage incurred as a result of any user's reliance on this data outside FSA Programs. Wetland identifiers do not represent the size, shape, or specific determination of the area. Refer to your original determination (CPA-026 and attached maps) for exact boundaries and determinations or contact USDA Natural Resources Conservation Service (NRCS).

Horizon Colony

Appendix A: Phosphorus Index Worksheet (Complete for each field and crop)

Field: NE of Colony **Crop:** All **Year:** All

Field Category Factor	None (0)	Low (1)	Medium (2)	High (4)	Very High (8)	Risk Value (0,1,2,4,8)	Weight Factor	Weight Risk
Soil Erosion	NA	<5 tons/as/yr	5-10 ton/ac/yr	10-15 tons/ac/yr	QA> 10 for erodible soils	1	X 1.5	1.5
Furrow Irrigation Erosion	N/A	Tail water recovery, QS>6 very erodible soils, or QS>10 other soils	QS> for erosion resistant soil	QS> for erodible soils	QA>6 for very erodible soils	0	X 1.5	0
Sprinkler Irrigation Erosion NA	All fields 0-3% slope, all sandy fields or field evaluation indicates little or no runoff large spray on silts 3-8%	Medium spray on silty soils 3-15% slopes, large spray on silty soils 8-15% slope, low spray on silt soils 3-8% large spray on clay soil 3-15% slope	Medium spray on clay soils 3-8% slopes, large spray on clay soils >15% slope, medium spray on silt soil >15% slope	Medium spray on clay soils >8% slope, low spray on clay soil 3-8% slope, low spray on silty soils >15% slopes	Low spray on clay soils >8% slopes	0	X 1.5	0
Runoff Class	Negligible	Very Low or Low	Medium	High	Very High	1	X 0.5	.5
Olson Soil Test P	--------	<20 ppm	20-40 ppm	40-80 ppm	>80 ppm	1	X 0.5	.5
Commercial P Fertilizer Application Method	None Applied	Placed with Planter or injection deeper than 2 inches	Incorporated <3 months prior to planting or surface applied during growing season	Incorporated >3 months before crop or surface applied <3 months before crop emerges	Surface applied to pasture or >3 months before crop emerges	1	X 1.0	1
Commercial P Fertilizer Application Rate	None Applied	<30 lbs/ac P205	31-90 lbs/ac P205	91-150 lbs/ac P205	>150 lbs/ac P205	1	X 1.0	1
Organic P Source Application Method	None Applied	Injected deeper than 2 inches	Incorporated <3 months prior to planting or surface applied during growing season	Incorporated >3 months before crop or surface applied <3 months before crop.	Surface applied to pasture or >3 months before crop emerges	2	X 1.0	2
Organic P Source Application Rate	None Applied	<30 lbs/ac P205	31-90 lbs/ac P205	91-150 lbs/ac P205	>150 lbs/ac P205	2	X 1.0	2
Distance to Concentrated Surface Water Flow	>1,000 feet	200-1,000 feet, or functioning grass waterways in concentrated surface water	100-200 feet	<100 feet	0 feet or application are directly into concentrated surface water flow areas.	1	X 1.0	1
Total Phosphorus Index Value:								9.5

Horizon Colony

Appendix A: Phosphorus Index Worksheet (Complete for each field and crop)

Field: N of Colony **Crop:** All **Year:** All

Field Category Factor	None (0)	Low (1)	Medium (2)	High (4)	Very High (8)	Risk Value (0,1,2,4,8)	Weight Factor	Weight Risk
Soil Erosion	NA	<5 tons/as/yr	5-10 ton/ac/yr	10-15 tons/ac/yr	QA> 10 for erodible soils	1	X 1.5	1.5
Furrow Irrigation Erosion	N/A	Tail water recovery, QS>6 very erodible soils, or QS>10 other soils	QS> for erosion resistant soil	QS> for erodible soils	QA>6 for very erodible soils	0	X 1.5	0
Sprinkler Irrigation Erosion NA	All fields 0-3% slope, all sandy fields or field evaluation indicates little or no runoff large spray on silts 3-8%	Medium spray on silty soils 3-15% slopes, large spray on silty soils 8-15% slope, low spray on silt soils 3-8% large spray on clay soil 3-15% slope	Medium spray on clay soils 3-8% slopes, large spray on clay soils >15% slope, medium spray on silt soil >15% slope	Medium spray on clay soils >8% slope, low spray on clay soil 3-8% slope, low spray on silty soils >15% slopes	Low spray on clay soils >8% slopes	0	X 1.5	0
Runoff Class	Negligible	Very Low or Low	Medium	High	Very High	1	X 0.5	.5
Olson Soil Test P	--------	<20 ppm	20-40 ppm	40-80 ppm	>80 ppm	1	X 0.5	.5
Commercial P Fertilizer Application Method	None Applied	Placed with Planter or injection deeper than 2 inches	Incorporated <3 months prior to planting or surface applied during growing season	Incorporated >3 months before crop or surface applied <3 months before crop emerges	Surface applied to pasture or >3 months before crop emerges	1	X 1.0	1
Commercial P Fertilizer Application Rate	None Applied	<30 lbs/ac P205	31-90 lbs/ac P205	91-150 lbs/ac P205	>150 lbs/ac P205	1	X 1.0	1
Organic P Source Application Method	None Applied	Injected deeper than 2 inches	Incorporated <3 months prior to planting or surface applied during growing season	Incorporated >3 months before crop or surface applied <3 months before crop.	Surface applied to pasture or >3 months before crop emerges	2	X 1.0	2
Organic P Source Application Rate	None Applied	<30 lbs/ac P205	31-90 lbs/ac P205	91-150 lbs/ac P205	>150 lbs/ac P205	2	X 1.0	2
Distance to Concentrated Surface Water Flow	>1,000 feet	200-1,000 feet, or functioning grass waterways in concentrated surface water	100-200 feet	<100 feet	0 feet or application are directly into concentrated surface water flow areas.	2	X 1.0	2
Total Phosphorus Index Value:								10.5

Horizon Colony

Appendix A: Phosphorus Index Worksheet (Complete for each field and crop)

Field: NW of Colony **Crop:** All **Year:** All

Field Category Factor	None (0)	Low (1)	Medium (2)	High (4)	Very High (8)	Risk Value (0,1,2,4,8)	Weight Factor	Weight Risk
Soil Erosion	NA	<5 tons/as/yr	5-10 ton/ac/yr	10-15 tons/ac/yr	QA> 10 for erodible soils	1	X 1.5	1.5
Furrow Irrigation Erosion	N/A	Tail water recovery, QS>6 very erodible soils, or QS>10 other soils	QS> for erosion resistant soil	QS> for erodible soils	QA>6 for very erodible soils	0	X 1.5	0
Sprinkler Irrigation Erosion N/A	All fields 0-3% slope, all sandy fields or field evaluation indicates little or no runoff large spray on silts 3-8%	Medium spray on silty soils 3-15% slopes, large spray on silty soils 8-15% slope, low spray on silt soils 3-8% large spray on clay soil 3-15% slope	Medium spray on clay soils 3-8% slopes, large spray on clay soils >15% slope, medium spray on silt soil >15% slope	Medium spray on clay soils >8% slope, low spray on clay soil 3-8% slope, low spray on silty soils >15% slopes	Low spray on clay soils >8% slopes	0	X 1.5	0
Runoff Class	Negligible	Very Low or Low	Medium	High	Very High	1	X 0.5	.5
Olson Soil Test P	--------	<20 ppm	20-40 ppm	40-80 ppm	>80 ppm	1	X 0.5	.5
Commercial P Fertilizer Application Method	None Applied	Placed with Planter or injection deeper than 2 inches	Incorporated <3 months prior to planting or surface applied during growing season	Incorporated >3 months before crop or surface applied <3 months before crop emerges	Surface applied to pasture or >3 months before crop emerges	1	X 1.0	1
Commercial P Fertilizer Application Rate	None Applied	<30 lbs/ac P205	31-90 lbs/ac P205	91-150 lbs/ac P205	>150 lbs/ac P205	1	X 1.0	1
Organic P Source Application Method	None Applied	Injected deeper than 2 inches	Incorporated <3 months prior to planting or surface applied during growing season	Incorporated >3 months before crop or surface applied <3 months before crop.	Surface applied to pasture or >3 months before crop emerges	2	X 1.0	2
Organic P Source Application Rate	None Applied	<30 lbs/ac P205	31-90 lbs/ac P205	91-150 lbs/ac P205	>150 lbs/ac P205	2	X 1.0	2
Distance to Concentrated Surface Water Flow	>1,000 feet	200-1,000 feet, or functioning grass waterways in concentrated surface water	100-200 feet	<100 feet	0 feet or application are directly into concentrated surface water flow areas.	2	X 1.0	2
Total Phosphorus Index Value:								10.5

Horizon Colony

Appendix A: Phosphorus Index Worksheet (Complete for each field and crop)

Field: East of Colony **Crop:** All **Year:** All

Field Category Factor	None (0)	Low (1)	Medium (2)	High (4)	Very High (8)	Risk Value (0,1,2,4,8)	Weight Factor	Weight Risk
Soil Erosion	NA	<5 tons/as/yr	5-10 ton/ac/yr	10-15 tons/ac/yr	QA> 10 for erodible soils	1	X 1.5	1.5
Furrow Irrigation Erosion	N/A	Tail water recovery, QS>6 very erodible soils, or QS>10 other soils	QS> for erosion resistant soil	QS> for erodible soils	QA>6 for very erodible soils	0	X 1.5	0
Sprinkler Irrigation Erosion NA	All fields 0-3% slope, all sandy fields or field evaluation indicates little or no runoff large spray on silts 3-8%	Medium spray on silty soils 3-15% slopes, large spray on silty soils 8-15% slope, low spray on silt soils 3-8% large spray on clay soil 3-15% slope	Medium spray on clay soils 3-8% slopes, large spray on clay soils >15% slope, medium spray on silt soil >15% slope	Medium spray on clay soils >8% slope, low spray on clay soil 3-8% slope, low spray on silty soils >15% slopes	Low spray on clay soils >8% slopes	0	X 1.5	0
Runoff Class	Negligible	Very Low or Low	Medium	High	Very High	1	X 0.5	.5
Olson Soil Test P	--------	<20 ppm	20-40 ppm	40-80 ppm	>80 ppm	1	X 0.5	.5
Commercial P Fertilizer Application Method	None Applied	Placed with Planter or injection deeper than 2 inches	Incorporated <3 months prior to planting or surface applied during growing season	Incorporated >3 months before crop or surface applied <3 months before crop emerges	Surface applied to pasture or >3 months before crop emerges	1	X 1.0	1
Commercial P Fertilizer Application Rate	None Applied	<30 lbs/ac P205	31-90 lbs/ac P205	91-150 lbs/ac P205	>150 lbs/ac P205	1	X 1.0	1
Organic P Source Application Method	None Applied	Injected deeper than 2 inches	Incorporated <3 months prior to planting or surface applied during growing season	Incorporated >3 months before crop or surface applied <3 months before crop.	Surface applied to pasture or >3 months before crop emerges	2	X 1.0	2
Organic P Source Application Rate	None Applied	<30 lbs/ac P205	31-90 lbs/ac P205	91-150 lbs/ac P205	>150 lbs/ac P205	1	X 1.0	1
Distance to Concentrated Surface Water Flow	>1,000 feet	200-1,000 feet, or functioning grass waterways in concentrated surface water	100-200 feet	<100 feet	0 feet or application are directly into concentrated surface water flow areas.	2	X 1.0	2
Total Phosphorus Index Value:								9.5

Horizon Colony

Appendix A: Phosphorus Index Worksheet (Complete for each field and crop)

Field: West of Colony **Crop:** All **Year:** All

Field Category Factor	None (0)	Low (1)	Medium (2)	High (4)	Very High (8)	Risk Value (0,1,2,4,8)	Weight Factor	Weight Risk
Soil Erosion	NA	<5 tons/as/yr	5-10 ton/ac/yr	10-15 tons/ac/yr	QA> 10 for erodible soils	1	X 1.5	1.5
Furrow Irrigation Erosion	N/A	Tail water recovery, QS>6 very erodible soils, or QS>10 other soils	QS> for erosion resistant soil	QS> for erodible soils	QA>6 for very erodible soils	0	X 1.5	0
Sprinkler Irrigation Erosion NA	All fields 0-3% slope, all sandy fields or field evaluation indicates little or no runoff large spray on silts 3-8%	Medium spray on silty soils 3-15% slopes, large spray on silty soils 8-15% slope, low spray on silt soils 3-8% large spray on clay soil 3-15% slope	Medium spray on clay soils 3-8% slopes, large spray on clay soils >15% slope, medium spray on silt soil >15% slope	Medium spray on clay soils >8% slope, low spray on clay soil 3-8% slope, low spray on silty soils >15% slopes	Low spray on clay soils >8% slopes	0	X 1.5	0
Runoff Class	Negligible	Very Low or Low	Medium	High	Very High	1	X 0.5	.5
Olson Soil Test P	--------	<20 ppm	20-40 ppm	40-80 ppm	>80 ppm	1	X 0.5	.5
Commercial P Fertilizer Application Method	None Applied	Placed with Planter or injection deeper than 2 inches	Incorporated <3 months prior to planting or surface applied during growing season	Incorporated >3 months before crop or surface applied <3 months before crop emerges	Surface applied to pasture or >3 months before crop emerges	2	X 1.0	2
Commercial P Fertilizer Application Rate	None Applied	<30 lbs/ac P205	31-90 lbs/ac P205	91-150 lbs/ac P205	>150 lbs/ac P205	1	X 1.0	1
Organic P Source Application Method	None Applied	Injected deeper than 2 inches	Incorporated <3 months prior to planting or surface applied during growing season	Incorporated >3 months before crop or surface applied <3 months before crop.	Surface applied to pasture or >3 months before crop emerges	2	X 1.0	2
Organic P Source Application Rate	None Applied	<30 lbs/ac P205	31-90 lbs/ac P205	91-150 lbs/ac P205	>150 lbs/ac P205	2	X 1.0	2
Distance to Concentrated Surface Water Flow	>1,000 feet	200-1,000 feet, or functioning grass waterways in concentrated surface water	100-200 feet	<100 feet	0 feet or application are directly into concentrated surface water flow areas.	2	X 1.0	2
Total Phosphorus Index Value:								10.5

Horizon Colony

Appendix A: Phosphorus Index Worksheet (Complete for each field and crop)

Field: SE of Colony **Crop:** All **Year:** All

Field Category Factor	None (0)	Low (1)	Medium (2)	High (4)	Very High (8)	Risk Value (0,1,2,4,8)	Weight Factor	Weight Risk
Soil Erosion	NA	<5 tons/as/yr	5-10 ton/ac/yr	10-15 tons/ac/yr	QA> 10 for erodible soils	1	X 1.5	1.5
Furrow Irrigation Erosion	N/A	Tail water recovery, QS>6 very erodible soils, or QS>10 other soils	QS> for erosion resistant soil	QS> for erodible soils	QA>6 for very erodible soils	0	X 1.5	0
Sprinkler Irrigation Erosion NA	All fields 0-3% slope, all sandy fields or field evaluation indicates little or no runoff large spray on silts 3-8%	Medium spray on silty soils 3-15% slopes, large spray on silty soils 8-15% slope, low spray on silt soils 3-8% large spray on clay soil 3-15% slope	Medium spray on clay soils 3-8% slopes, large spray on clay soils >15% slope, medium spray on silt soil >15% slope	Medium spray on clay soils >8% slope, low spray on clay soil 3-8% slope, low spray on silty soils >15% slopes	Low spray on clay soils >8% slopes	0	X 1.5	0
Runoff Class	Negligible	Very Low or Low	Medium	High	Very High	1	X 0.5	.5
Olson Soil Test P	-------	<20 ppm	20-40 ppm	40-80 ppm	>80 ppm	1	X 0.5	.5
Commercial P Fertilizer Application Method	None Applied	Placed with Planter or injection deeper than 2 inches	Incorporated <3 months prior to planting or surface applied during growing season	Incorporated >3 months before crop or surface applied <3 months before crop emerges	Surface applied to pasture or >3 months before crop emerges	2 / 1	X 1.0	2 / 1
Commercial P Fertilizer Application Rate	None Applied	<30 lbs/ac P205	31-90 lbs/ac P205	91-150 lbs/ac P205	>150 lbs/ac P205	1	X 1.0	1
Organic P Source Application Method	None Applied	Injected deeper than 2 inches	Incorporated <3 months prior to planting or surface applied during growing season	Incorporated >3 months before crop or surface applied <3 months before crop.	Surface applied to pasture or >3 months before crop emerges	2	X 1.0	2
Organic P Source Application Rate	None Applied	<30 lbs/ac P205	31-90 lbs/ac P205	91-150 lbs/ac P205	>150 lbs/ac P205	1	X 1.0	1
Distance to Concentrated Surface Water Flow	>1,000 feet	200-1,000 feet, or functioning grass waterways in concentrated surface water	100-200 feet	<100 feet	0 feet or application are directly into concentrated surface water flow areas.	2	X 1.0	2
Total Phosphorus Index Value:								9.5

Horizon Colony

Appendix A: Phosphorus Index Worksheet (Complete for each field and crop)

Field: So of Colony **Crop:** All **Year:** All

Field Category Factor	None (0)	Low (1)	Medium (2)	High (4)	Very High (8)	Risk Value (0,1,2,4,8)	Weight Factor	Weight Risk
Soil Erosion	NA	<5 tons/as/yr	5-10 ton/ac/yr	10-15 tons/ac/yr	QA> 10 for erodible soils	1	X 1.5	1.5
Furrow Irrigation Erosion	N/A	Tail water recovery, QS>6 very erodible soils, or QS>10 other soils	QS> for erosion resistant soil	QS> for erodible soils	QA>6 for very erodible soils	0	X 1.5	0
Sprinkler Irrigation Erosion NA	All fields 0-3% slope, all sandy fields or field evaluation indicates little or no runoff large spray on silts 3-8%	Medium spray on silty soils 3-15% slopes, large spray on silty soils 8-15% slope, low spray on silt soils 3-8% large spray on clay soil 3-15% slope	Medium spray on clay soils 3-8% slopes, large spray on clay soils >15% slope, medium spray on silt soil >15% slope	Medium spray on clay soils >8% slope, low spray on clay soil 3-8% slope, low spray on silty soils >15% slopes	Low spray on clay soils >8% slopes	0	X 1.5	0
Runoff Class	Negligible	Very Low or Low	Medium	High	Very High	1	X 0.5	.5
Olson Soil Test P	--------	<20 ppm	20-40 ppm	40-80 ppm	>80 ppm	1	X 0.5	.5
Commercial P Fertilizer Application Method	None Applied	Placed with Planter or injection deeper than 2 inches	Incorporated <3 months prior to planting or surface applied during growing season	Incorporated >3 months before crop or surface applied <3 months before crop emerges	Surface applied to pasture or >3 months before crop emerges	1	X 1.0	1
Commercial P Fertilizer Application Rate	None Applied	<30 lbs/ac P205	31-90 lbs/ac P205	91-150 lbs/ac P205	>150 lbs/ac P205	1	X 1.0	1
Organic P Source Application Method	None Applied	Injected deeper than 2 inches	Incorporated <3 months prior to planting or surface applied during growing season	Incorporated >3 months before crop or surface applied <3 months before crop.	Surface applied to pasture or >3 months before crop emerges	2	X 1.0	2
Organic P Source Application Rate	None Applied	<30 lbs/ac P205	31-90 lbs/ac P205	91-150 lbs/ac P205	>150 lbs/ac P205	2	X 1.0	2
Distance to Concentrated Surface Water Flow	>1,000 feet	200-1,000 feet, or functioning grass waterways in concentrated surface water	100-200 feet	<100 feet	0 feet or application are directly into concentrated surface water flow areas.	2	X 1.0	2
Total Phosphorus Index Value:								10.5

Horizon Colony

Appendix A: Phosphorus Index Worksheet (Complete for each field and crop)

Field: SW of Colony **Crop:** All **Year:** All

Field Category Factor	None (0)	Low (1)	Medium (2)	High (4)	Very High (8)	Risk Value (0,1,2,4,8)	Weight Factor	Weight Risk
Soil Erosion	NA	<5 tons/as/yr	5-10 ton/ac/yr	10-15 tons/ac/yr	QA> 10 for erodible soils	1	X 1.5	1.5
Furrow Irrigation Erosion	N/A	Tail water recovery, QS>6 very erodible soils, or QS>10 other soils	QS> for erosion resistant soil	QS> for erodible soils	QA>6 for very erodible soils	0	X 1.5	0
Sprinkler Irrigation Erosion NA	All fields 0-3% slope, all sandy fields or field evaluation indicates little or no runoff large spray on silts 3-8%	Medium spray on silty soils 3-15% slopes, large spray on silty soils 8-15% slope, low spray on silt soils 3-8% large spray on clay soil 3-15% slope	Medium spray on clay soils 3-8% slopes, large spray on clay soils >15% slope, medium spray on silt soil >15% slope	Medium spray on clay soils >8% slope, low spray on clay soil 3-8% slope, low spray on silty soils >15% slopes	Low spray on clay soils >8% slopes	0	X 1.5	0
Runoff Class	Negligible	Very Low or Low	Medium	High	Very High	1	X 0.5	.5
Olson Soil Test P	-------	<20 ppm	20-40 ppm	40-80 ppm	>80 ppm	1	X 0.5	.5
Commercial P Fertilizer Application Method	None Applied	Placed with Planter or injection deeper than 2 inches	Incorporated <3 months prior to planting or surface applied during growing season	Incorporated >3 months before crop or surface applied <3 months before crop emerges	Surface applied to pasture or >3 months before crop emerges	1	X 1.0	1
Commercial P Fertilizer Application Rate	None Applied	<30 lbs/ac P205	31-90 lbs/ac P205	91-150 lbs/ac P205	>150 lbs/ac P205	1	X 1.0	1
Organic P Source Application Method	None Applied	Injected deeper than 2 inches	Incorporated <3 months prior to planting or surface applied during growing season	Incorporated >3 months before crop or surface applied <3 months before crop.	Surface applied to pasture or >3 months before crop emerges	2	X 1.0	2
Organic P Source Application Rate	None Applied	<30 lbs/ac P205	31-90 lbs/ac P205	91-150 lbs/ac P205	>150 lbs/ac P205	2	X 1.0	2
Distance to Concentrated Surface Water Flow	>1,000 feet	200-1,000 feet, or functioning grass waterways in concentrated surface water	100-200 feet	<100 feet	0 feet or application are directly into concentrated surface water flow areas.	2	X 1.0	2
Total Phosphorus Index Value:								10.5

Horizon County Phos Index Map

Custom Soil Resource Report
Soil Map